

CHRONIC WASTING DISEASE:



It's Rare. It's A Killer!

Editor's note: Chronic wasting disease was first recognized in captive deer in a research station in Colorado in 1967. It was later found in a Wyoming and has since been found in wild populations of deer and elk in several states.

It has not been found in North Dakota at this time, but it is a concern and we think it is important to provide our readers with some basic information about this rare disease of deer and elk.

**By Jacquie Gerads
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Chronic wasting disease affects the nervous system and brain of deer and elk causing an infected animal to eventually die. While it is becoming a familiar term in North Dakota, chronic wasting disease has never been found in the state.

It has, however, been found in neighboring Montana, South Dakota and the Canadian provinces of Alberta and Saskatchewan. The North Dakota Game and Fish Department and State Board of Animal Health are concerned about spread of this disease. Together, the two agencies want to reduce the chance of

this disease entering the state and have monitored wild and captive deer and elk for a number of years.

In 1996, the Game and Fish Department initiated a statewide Targeted Surveillance program in which any wild deer or elk showing signs and symptoms consistent with CWD would be examined

and euthanized if necessary. Chronic wasting disease can only be confirmed by laboratory analysis of brain tissue, so a suspected animal must be put down to confirm if it indeed does have the disease. The Board of Animal Health also has regulations in place for monitoring and testing captive deer and elk.

Chronic wasting disease was first discovered in captive elk at a research facility in Colorado in the late 1960s. It has since been found in captive herds in Wyoming, South Dakota, Montana, Oklahoma, Nebraska, Kansas, Saskatchewan and Alberta. In 1981 the disease first turned up in the wild in Colorado. Even though chronic wasting disease remains relatively rare in the wild, concern about its spread and potential affects has increased in recent years.

Until a few years ago CWD was confined to a few hunt areas in northeastern Colorado and southeastern Wyoming. The disease now has been found in wild deer in Nebraska, Saskatchewan, South Dakota and Wisconsin. The case in Nebraska was the first time CWD was diagnosed in wild deer outside of the core area of Colorado and Wyoming. The cases in Wisconsin were the first known cases in wild deer east of the Mississippi River.

The number of cases has increased in recent years, but no one knows whether this is because officials are looking harder for the disease, or because more deer are infected.

The disease continues to make headlines and has the attention of wildlife biologists, researchers, the agriculture industry, health officials and hunters. Moreover, with the recent discovery of CWD in wild white-tailed deer in Wisconsin and South Dakota, the North Dakota Game and Fish Department is reviewing and revising its strategies to further reduce the chance of it spreading to North Dakota. The following questions and answers should help readers better understand this mysterious disease, and what might happen if it eventually is discovered in North Dakota.

What is Chronic Wasting Disease?

Chronic wasting disease is a progressive, fatal disease of the nervous system of white-tailed deer, mule deer, and elk. It belongs to a family of diseases known as Transmissible Spongiform Encephalopathies. Although CWD shares certain features with other TSEs like bovine spongiform encephalopathy (BSE or mad cow disease), scrapie in sheep and goats, and Creutzfeldt-Jakob disease in humans, it is a distinct disease apparently affecting only deer and elk. It causes damage to portions of the brain; creating holes in the brain cells and causing a sponge-like appearance.

Where is it found?

CWD was first diagnosed in a Colorado captive elk research facility in 1967, and a few years later in a similar Wyoming research facility. It was later discovered in free-ranging elk and deer near those facilities in Colorado and Wyoming. CWD has since been found in captive elk herds in Colorado, Wyoming, South Dakota, Nebraska, Kansas, Oklahoma, Montana, Alberta and Saskatchewan. Until recently, CWD distribution in wild

deer and elk was confined to a few hunt areas in northeastern Colorado and southeastern Wyoming. However, several cases of CWD were recently diagnosed in wild deer in Nebraska, Saskatchewan, South Dakota and Wisconsin. CWD has not been found in wild or captive deer or elk in North Dakota.

How common is it?

CWD is relatively rare. In Colorado and Wyoming, CWD affects about 5-15 percent of the deer in a small core area where the disease has been found, and less than one percent of the wild elk in the core area. Nonetheless, the number of CWD cases has gone up in recent years. This may be related to dissemination of knowledge about the disease and increased surveillance for its occurrence.

What are the signs and symptoms of CWD?

CWD is a slowly progressing disease; signs typically are not seen until the animal is 12 months of age. CWD attacks

Chronic wasting disease is an illness that can cause a healthy white-tailed deer (opposite page) and mule deer (below) to waste away to skin and bones in several months.



the brains of infected deer and elk, causing the animals to become emaciated, display abnormal behavior, lose bodily functions, become weak and eventually die. Signs identified in captive deer include excessive salivation, loss of appetite, progressive weight loss, excessive thirst and urination, listlessness, teeth grinding, lowering of the head, and drooping ears. Many of these signs are also caused by other diseases.

How is CWD transmitted?

Neither the agent causing CWD nor its mode of transmission has been positively identified. Experimental and circumstantial evidence suggest infected deer and elk probably transmit the disease through close animal-to-animal contact, or perhaps from mother to offspring. Other possible sources may be through contamination of feed or water sources with saliva, urine, and/or feces or through contact with an infected facility. In free-ranging populations, decomposition of carcasses could play a role in transmission. CWD seems more likely to occur in areas where deer or elk are crowded or where they congregate at man-made feed and water stations. Artificial feeding of deer and elk may compound the problem.

What causes CWD?

CWD is not the result of a virus, bacteria, or nutritional imbalance. It is apparently caused by prions, which are abnormal proteins that have no DNA or cell nucleus. The prions cause sponge-like lesions in an animal's brain. Also, these abnormal prions tend to accumulate only in certain parts of infected animals, i.e., brain, eyes, spinal cord, lymph nodes, tonsils and spleen. Research also indicates that prions do not accumulate in muscle tissue of deer and elk.

How do you test for CWD?

The only sure way to diagnose CWD is to examine an animal's brain for the characteristic lesions. This involves removal of the obex portion of the brain stem tissue from a recently deceased animal. A test for live animals, which involves removal of the tonsils, is currently in experimental and research stages. Research indicates that testing tonsils for prions appears reliable for mule deer but not elk; however, removing tonsils from a live animal may not be practical. Examining the brain stem remains the most practical and reliable test available.

What is the incubation period?

Incubation period is the time from exposure until development of clinical signs. Minimum incubation periods in natural cases may be as short as 12 months and as long as three or more years. Incubation periods may be shorter for deer than for elk.

Is there a treatment for infected deer and elk?

No. Death is inevitable for an animal displaying clinical signs consistent with CWD. These animals should be euthanized, as removing infected animals may help prevent spread of the disease or infection.

Is CWD transmissible to humans?

According to experts and public health officials, there is no evidence that CWD can be naturally transmitted to humans or to animals other than deer and elk. However, as a precaution, the North Dakota Game and Fish Department recommends that humans do not consume brain, spinal cord, eyes, spleen, and lymph nodes of any deer or elk. There is no evidence that the prions that cause CWD occur in the meat or muscle tissue of infected animals. However, Game and Fish recommends that humans do not consume any deer or elk that shows signs for CWD or any other diseases.

Is CWD transmissible to domestic livestock?

There is no evidence that CWD can be naturally transmitted to livestock or animals other than deer and elk. Livestock, pronghorns, and bighorn sheep have not come down with the disease, even though they were often exposed to it under research conditions. CWD is similar in some respects to two livestock diseases: scrapie affects domestic sheep and goats world-wide and has been recognized for over 200 years; BSE is a more recent disease of cattle in the United Kingdom. Although there are similarities, there is no evidence suggesting either scrapie or BSE are caused by contact with wild deer or elk.

What precautions should hunters take when handling or processing deer and elk?

While there is no evidence that CWD naturally affects humans, and the disease is not known to exist in the state, Game and Fish advises that hunters take these simple precautions when handling the carcass of any deer or elk:

1. Avoid sick animals; don't handle or shoot them, instead contact local wildlife agency personnel
2. Wear rubber/latex gloves when field dressing deer or elk
3. Minimize handling the brain, spinal cord, eyes, spleen, and lymph nodes
4. Bone out the carcass
5. Avoid consuming the brain, spinal cord, eyes, spleen, and lymph nodes of any animal (normal field dressing coupled with boning out a carcass will remove most, if not all, of these body parts. Cutting away all fatty tissue will remove remaining lymph nodes.)
6. Thoroughly wash hands, knives, and other tools used to field dress the animal
7. Dispose of the hide and bones in a sanitary landfill or incinerator

Also, hunters who plan to hunt deer or elk in other states (e.g. Colorado) should get additional information from the respective state agency.

Is it safe to eat venison from infected deer and elk?

There is no scientific evidence that CWD is transmissible through consumption of venison. The prion that causes CWD accumulates in certain parts of infected animals, i.e., the brain, eyes, spinal cord, lymph nodes, tonsils, and spleen. Therefore, these tissues should not be eaten. Health officials additionally advise that no part of any animal showing signs of CWD should be consumed by humans or other animals.

What should you do if you see a deer or elk that looks sick, emaciated or lethargic?

Note the location and as much information as possible about the animal and situation. Call the Game and Fish Department at 701-328-6613 or 701-328-6300, immediately. Arrangements will be made to investigate the report.

What is the Game and Fish Department doing about CWD?

To date, CWD has never been found in captive or wild deer or elk populations in North Dakota. The Game and Fish and the Board of Animal Health have been working cooperatively to reduce the potential of CWD entering North Dakota, which involves recognition, collection, and submission of samples from wild deer and elk that are suspect or showing signs consistent with CWD.

Approximately 20 wild animals have been tested for CWD since targeted surveillance started in 1996. All samples have come back negative for the disease. Game and Fish plans to increase targeted surveillance by using more aggressive and prompt elimination of any deer or elk exhibiting clinical signs consistent with CWD. The usual profile for a CWD deer or elk is one that is at least 12 months of age, emaciated, exhibiting abnormal behavior, increased salivation and/or trembling, stumbling, incoordination, and has difficulty swallowing.

Game and Fish is currently revising and developing strategies to reduce the likelihood of CWD entering the state. However, if CWD is found in wild deer or elk in North Dakota, the agency will implement strategies (e.g., culling) aimed at preventing its spread and reducing its occurrence. Eliminating CWD in free-ranging deer and elk is difficult, given the limited understanding of its cause and transmission, and lack of an effective vaccine or treatment.

What is the ND Department of Agriculture, State Board of Animal Health doing?

The Board of Animal Health is monitoring private, captive elk and deer herds. The board initiated mandatory inventory of all game farms in 1993 and initiated mandatory CWD surveillance, reporting, and testing in 1998 of any captive elk or deer of more than twelve months of age that dies from any cause. Included in the CWD surveillance program is a five-year risk assessment, which includes a herd traceback and health certificate before any deer or elk is imported into the state. As a result of the CWD surveillance program, the Board of Animal Health has submitted more than 600 brain samples for CWD testing; none have tested positive. If CWD is found in a captive animal, the farm would be quarantined and the herd eradicated using recommended control strategies.



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Chronic wasting disease has also been found in wild elk populations.

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